

# Meter menu

WMU

February 2018





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# Meter Menu

## Scope

This document has been produced to show a list of the Meters, which Hafren Dyfrdwy set out to use. The document will also provide the Manufacturers Technical Specification of each of the meters listed below.

	Model	Year	Size
	Elster	2006	100mm
	Elster	2009	40mm
	Elster	2011	80mm
	Elster	2013	100mm
	Elster	2015	25mm

	Model	Year	Size
	Kents	1994	100mm
	Kents	1997	50mm
	Kents	1998	80mm
	Kents	2000	75mm
	Kents	2005	75mm
	Kents	2006	75mm

	Model	Year	Size
	Arad Octave	2013	50mm
	Arad WST/SB	2013	80mm
	Arad Octave	2014	100mm
	Arad Octave	2015	150mm
	Arad	2015	50mm
	Arad Octave	2016	80mm

## Datasheet: H4000

### Product Specification

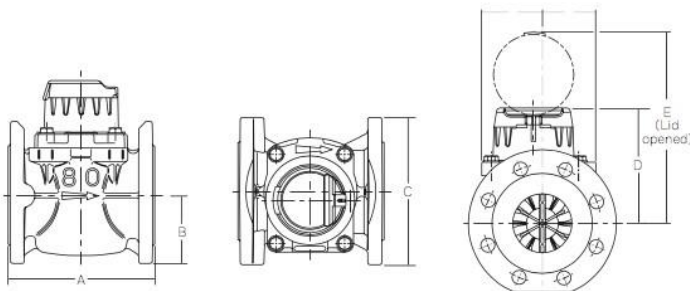


#### H4000 PERFORMANCE (FORWARD FLOW)

METER SIZE (MM)	FLOW	UNITS	40	50	65	80	100	125	150	200	250	300
OVERLOAD FLOW RATE	qs±2%	m <sup>3</sup> /h	90	90	120	200	250	250	600	1000	1600	2000
PERMANENT FLOW RATE	qp±2%	m <sup>3</sup> /h	50	50	65	120	180	180	450	700	1000	1500
TRANSITIONAL FLOW RATE	qt±2%	m <sup>3</sup> /h	1	1	1.5	2	2	2	4	6	11	15
MINIMUM FLOW RATE (HORIZONTAL)	qmin±5%	m <sup>3</sup> /h	0.35	0.35	0.4	0.5	0.6	0.6	1.8	4	6	12
MINIMUM FLOW RATE (VERTICAL)	qmin±5%	m <sup>3</sup> /h	0.45	0.45	0.75	1.2	1.2	1.2	4.5	7.5	12	18
STARTING FLOW (APPROXIMATELY)		m <sup>3</sup> /h	0.15	0.16	0.17	0.22	0.25	0.25	0.9	1.2	1.8	1.8
HEADLOSS AT MAXIMUM FLOW		bar	0.84	0.49	0.69	0.27	0.43	0.58	0.33	0.32	0.37	0.58
MAXIMUM REGISTRATION		millions of m <sup>3</sup>	1	1	1	1	1	1	10	10	10	10
MAXIMUM WATER TEMPERATURE		°C	50	50	50	50	50	50	50	50	50	50
MAXIMUM WORKING PRESSURE		bar	16	16	16	16	16	16	16	16	16	16

#### STANDARD 2004/22/EC MID MI-001

METER SIZE		mm	40	50	65	80	100	125	150	200	250	300
OVERLOAD FLOW RATE	Q4	m <sup>3</sup> /h	79	79	79	200	200	200	500	787.5	1250	2000
PERMANENT FLOW RATE	Q3	m <sup>3</sup> /h	63	63	63	160	160	160	400	630	1000	1600
TRANSITIONAL FLOW RATE	Q2	m <sup>3</sup> /h	0.81	0.81	1.6	2.05	2.05	2.05	3.2	6.3	10	20.48
MINIMUM FLOW RATE	Q1	m <sup>3</sup> /h	0.5	0.5	1	1.28	1.28	1.28	2	3.94	6.25	12.8
TURNDOWN RATIO R	Q3/Q1	R value	125	125	63	125	125	125	200	160	160	125
HEADLOSS AT Q3	ΔP	bar	0.39	0.24	0.19	0.18	0.18	0.24	0.15	0.12	0.15	0.37

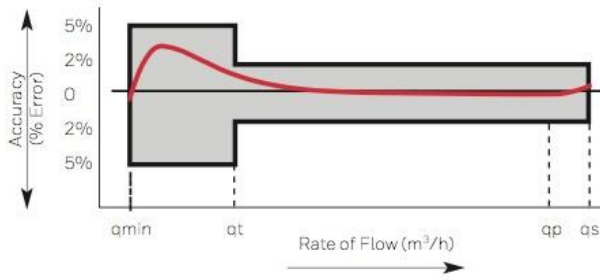


#### DIMENSIONS

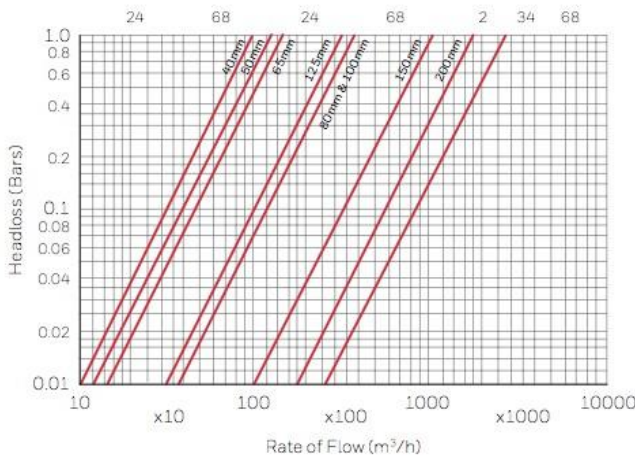
METER SIZE (mm)	UNITS	40	50	65	80	100	125	150	200	250	300
OVERALL LENGTH (ISO) (A)	mm	300	200/300	200/300	200/350	250/350	250	300/500	350	450	500
OVERALL LENGTH (KENT) (A)	mm	311	311	-	413	483	-	-	520	-	-
HEIGHT (B)	mm	78	78	86	94	106	118	135	165	198	225
HEIGHT (D)	mm	148	148	148	159	159	159	206	228	246	246
HEIGHT (E)	mm	236	236	236	247	247	247	294	316	334	334
FLANGE DIAMETER (C)	mm	151	166	186	201	228	251	286	341	409	461
WEIGHT (ISO)	kg	11.8	12.2/13.1	13/14.4	14.1/16.6	19.4/21	20.5	37.5/43.5	47.5	82	104
WEIGHT (KENT)	kg	12	13.3	-	17.6	23.6	-	-	54	-	-

# H4000 Product Specification

## TYPICAL ACCURACY CURVE



## TYPICAL HEADLOSS CURVE



On this example 50mm H4000 register, the user can identify from the dial plate both the:

- Type of pulser to use, i.e. PR7
- Pulse factor, i.e. P:1

## PULSE CONNECTIVITY

### Calculating pulse weights when fitted with PR7 inductive pulser:

Pulse weight is calculated by multiplying the register 'pulse factor' (P) by the PR7 'K-factor' (K);  
 Pulse weight (litres per pulse) = P x K.

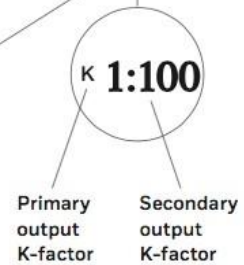
SIZE	PULSE FACTOR	K-FACTOR			
		K1	K10	K100	K1000
40mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
50mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
65mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
80mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
100mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
125mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
150mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs
200mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs
250mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs
300mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs

PR7 is an open collector pulse transmitter suitable for data logging, AMR and telemetry equipment. Check with your equipment supplier for full details of compatibility.

Pressure equipment directive 97/23/EC. This product is applicable in networks for the supply, distribution and discharge of water and associated equipment and is therefore exempt.



On the PR7 unit the user can identify from the label the K-factors for each output channel



# V100

## Product Specification

Measuring Instruments Directive 2004/22/EC  
Specifications according to OIML R49, EN14154 or ISO4064



### R250 FLOW RANGE ( $Q_3/Q_1$ )

Exceeding Class D equivalent

METER SIZE (mm)			15	20
METER THREAD SIZE		in	G 3/4"A	G 1"A
OVERLOAD FLOW RATE	$Q_4 \pm 2\%$	m <sup>3</sup> /h	3.125	5
PERMANENT FLOW RATE	$Q_3 \pm 2\%$	m <sup>3</sup> /h	2.5	4
TRANSITIONAL FLOW RATE	$Q_2 \pm 2\%$	l/h	16	25.6
MINIMUM FLOW RATE	$Q_1 \pm 5\%$	l/h	10	16
STARTING FLOW (APPROXIMATE)		l/h	2	2
MAXIMUM REGISTRATION		m <sup>3</sup>	9999.99999	9999.99999
OUTPUT PULSE		l/pulse	0.5	0.5

ALL MODELS Headloss at  $Q_3$  less than 0.63 bar. Maximum water temperature 30°C. Maximum working pressure 16 bar.

### R160 FLOW RANGE ( $Q_3/Q_1$ )

Class C equivalent

METER SIZE (mm)			15	20	25	30	40
METER THREAD SIZE		in	G 3/4"A	G 1"A	G 1 1/4"A	G 1 1/2"A	G 2"A
OVERLOAD FLOW RATE	$Q_4 \pm 2\%$	m <sup>3</sup> /h	3.125	5	7.875	12.5	20
PERMANENT FLOW RATE	$Q_3 \pm 2\%$	m <sup>3</sup> /h	2.5	4	6.3	10	16
TRANSITIONAL FLOW RATE	$Q_2 \pm 2\%$	l/h	25	40	63	100	160
MINIMUM FLOW RATE	$Q_1 \pm 5\%$	l/h	15.625	25	39.375	62.5	100
STARTING FLOW (APPROXIMATE)		l/h	2	2	6	12	20
MAXIMUM REGISTRATION		m <sup>3</sup>	9999.99999	9999.99999	99999.99999	99999.99999	99999.99999
OUTPUT PULSE		l/pulse	0.5	0.5	5	5	5

ALL MODELS Headloss at  $Q_3$  less than 0.63 bar. Maximum water temperature 30°C. Maximum working pressure 16 bar.

### PHYSICAL PROPERTIES

METER SIZE (mm)		15	20	25	30	40
METER DIAMETER	mm	86	86	104	120	158
METER RADIUS (WIDTH FROM PIPE CENTRE)	mm	43	43	52	60	79
METER LENGTH PREFERRED	mm	165	190	-	-	300
METER LENGTH ALTERNATIVE	mm	115 or 134	165	199	199	-
LENGTH OVER CONNECTORS	mm	200 or 228	267	311	327	421
WEIGHT - METER ONLY (APPROXIMATE)	kg	0.80 or 0.90	1.30	1.30	2.20	3.70

# ARAD Meters

## Dimensions

Model		Octave									
Nominal size	(mm)	40 Threaded	50 Threaded	50	65	80	100	150	200	250	300
	(inch)	1½ Threaded	2 Threaded	2	2.5	3	4	6	8	10	12
L - Length without couplings (mm)		300	300	200	200	225	250	300	350	449	499
W - Width (mm)		113	113	165	185	200	220	285	340	406	489
H - Height (mm)		155	155	194	210	210	223	282	332	383	456
h - Height (mm)		35	35	40	90	90	103	140	165	203	245
Weight (kg) - cast iron body			8	9	11.5	13	15	32	45	68	96
Weight (kg) - polymer body		1.4	1.45								

## Dimensions Stainless Steel Meters (AWWA flanges only)

Model		Octave Stainless Steel				
Nominal size	(mm)	50	80	100	150	200
	(inch)	2	3	4	6	8
L - Length without couplings (mm)		254	305	356	457	508
W - Width (mm)		147	190	229	280	343
H - Height (mm)		165	216	250	276	327
h - Height (mm)		53	90	115	130	162
Weight (kg) - stainless steel body		5.5	11.5	17	27	51

